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REMARKS

Claims 1 and 5-36 are all the claims presently pending in the application.

While Applicant asserts that all of the previously pending claims are patentable over the prior art of record, to speed prosecution and to place the application in condition for allowance, claim 1 is amended to define more clearly the features of the invention, as well as to incorporate the features of claim 2, 3, and 9-14. Claims 2 and 3 correspondingly are canceled without prejudice or disclaimer. Claims 26, 28, 30, 32, 34, and 36 have been amended to obviate the objections to the claims.

New claim 37 is added to define more clearly the features of the present invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-36 stand rejected under 35 U.S.C. § 112, first and second paragraphs.

Claims 1-3, 9, 14-18, 20, 24-28, 30-34, and 36 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Borza (U.S. Patent No. 6,446,210). Claims 10-13, 19, 21-23, 29, and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Borza and further in view of Kharon, et al. (U.S. Patent No. 6,487,662; hereinafter "Kharon"). Claims 1-36 stand rejected under 35 U.S.C. § 103(a) as being anticipated by, or alternatively, unpatentable over, Matyas, Jr. et al. (U.S. Patent No. 6,697,947).

These rejections are respectfully traversed in the following discussion.

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I. THE CLAIMED INVENTION

The claimed invention provides a method and system of processing semiotic data that allows use of the data without being a threat to privacy and that prevents misuse of such data, without significantly altering the accuracy and sensitivity of the identification process (e.g., see specification at page 3, lines 9-14).

For example, the claimed invention compares encrypted data against stored encrypted data while at the same time ensuring that unencrypted data is not available or retrievable under the condition that the data might be slightly different from the template. That is, the claimed invention determines whether P is close to P' by comparing only $h(P)$ with $h(P')$. Thus, in contrast to conventional methods, the claimed invention compares encrypted data against an encrypted template under the possibility that the data might be slightly different from the template (e.g., "close" to the data) (e.g., see specification at page 16, lines 12-17, and pages 17-20).

II. CLAIM REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 1-36 stand rejected under 35 U.S.C. § 112, first paragraph.

With respect to the rejections that allege lack of enablement of the claimed invention, Applicants respectfully traverse this rejection.

Applicants note that, as ample case law has held, the test for enablement is whether one of ordinary skill in the art could practice (e.g., make and use) the invention (e.g., the claimed invention), without undue experimentation.

Applicants submit that the ordinary skilled artisan could certainly make and use the claimed invention of a method of processing semiotic data, as claimed, after a thorough reading

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of the specification with reference to the drawings. Therefore, Applicants respectfully traverse this rejection.

Applicants respectfully submit that a *prima facie* case has not been established by the Examiner. That is, the Examiner has not established the specific reasons why one of ordinary skill in the art could not perform the claimed invention, without undue experimentation. The Examiner should identify what information is missing and why one skilled in the art could not supply the missing information without undue experimentation (e.g., see M.P.E.P. § 2164.04 and § 2164.06(a)).

Applicants respectfully submit that the specification, drawings, and original claims, clearly and particularly define the invention with reference, for example, to the first exemplary embodiment (e.g., see specification at page 12, line 4, to page 14, line 4) and the second exemplary embodiment (e.g., see specification at page 14, line 6, to page 16, line 19)(see also Figures 1-4 and 6).

In light of the specific examples in the original disclosure, drawings, and claims, Applicants submit that the ordinarily skilled artisan could certainly make and use the claimed invention of a method of processing semiotic data after a thorough reading of the specification with reference to the drawings. In other words, one of ordinary skill in the art could practice (e.g., make and use) the invention, without undue experimentation.

Accordingly, Applicants respectfully request that the Examiner withdraw this rejection.

With respect to the rejections under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, Applicants respectfully note that that Applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set

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forth the claimed invention (e.g., see M.P.E.P. § 2163, *citing* Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (fed. Cir. 1997)). Moreover, while there is no *in haec verba* requirements, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure. Thus, Applicants respectfully submit that the disclosure of the present application complies with all of the written description requirements for the claimed invention.

Applicants respectfully submit that the specification, drawings, and original claims, clearly and particularly define the invention with reference, for example, to the first exemplary embodiment (e.g., see specification at page 12, line 4, to page 14, line 4) and the second exemplary embodiment (e.g., see specification at page 14, line 6, to page 16, line 19)(see also Figures 1-4 and 6).

In light of the aforementioned specific examples in the original disclosure, Applicants submit that the present application clearly and particularly describes the claimed invention in sufficient detail such that one skilled in the art could reasonably conclude that the inventor had possession of the claimed invention (e.g., see M.P.E.P. § 2163, *citing* Moba, B.V., v. Diamond Automation, Inc., 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003)). Thus, Applicants have complied with all of the written description requirements for the claimed invention.

Therefore, the Examiner respectfully is requested to reconsider and withdraw this rejection.

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III. CLAIM REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-36 stand rejected under 35 U.S.C. § 112, second paragraph. The claims have been amended, above, to overcome this rejection.

Applicants submit that a person of ordinary skill in the art clearly would know the metes and bounds of the subject matter of claims 1-36.

With respect to the "means-plus-function" claim language, Applicants respectfully submit that the ordinarily skilled artisan would clearly understand the metes and bounds of the claimed system, as disclosed, for example, at page 21, line 5, to page 23, line 18 of the specification.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

IV. THE PRIOR ART REJECTIONS

For the Examiner's convenience, the traversal arguments set forth in the Amendment under 37 C.F.R. § 1.111 filed on June 18, 2004 and the Amendment under 37 C.F.R. § 1.116 filed on January 18, 2005 are incorporated herein by reference in their entirety.

A. Claims 1-3, 9, 14-18, 20, 24-28, 30-34, and 36 stand rejected under 35 U.S.C. §102(e) as being anticipated by Borza.

As set forth above, claim is amended to define more clearly the features of the invention and to incorporate the features of claims 2, 3, and 9-14. Thus, Applicants submit that this rejection is rendered moot by the amendments to claim 1.

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B. Claims 10-13, 19, 21-23, 29, and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Borza and further in view of Kharon.

Accordingly, Applicants respectfully submit that there are elements of the claimed invention, for which Borza is relied upon, which clearly are not disclosed or suggested by Borza. Therefore, Applicants respectfully traverse this rejection.

For example, Applicants respectfully submit that Borza does not disclose or suggest how to compare encrypted data against stored encrypted data while at the same time ensuring that unencrypted data is not available or retrievable under the condition that the data might be slightly different from the template, according to the present invention.

That is, the claimed invention is not determining whether $h(P)$ matches $h(P')$, as allegedly disclosed by Borza. Instead, the claimed invention is determining whether P is close to P' by comparing only $h(P)$ with $h(P')$. Borza does not disclose or suggest this feature of the claimed invention, or for that matter, even contemplate the problem solved by the claimed invention.

Applicants submit that Borza does not disclose or suggest comparing encrypted data against an encrypted template under the possibility that the data might be slightly different from the template (e.g., "close" to the data or substantially matching, but not exactly matching).

In comparison, the present invention is adapted to accommodate the lack of absolute reproducibility in the observation of personal data. The present invention discloses that, in the application of DNA typing, there exist two kinds of personal data with regard to reproducibility: (1) those data with absolute reproducibility, which are based on based on Polymerase Chain Reaction (PCR) methods, and (2) those data which, because of measurement uncertainty, add a degree of irreproducibility in the matching process (see specification at page 15, lines 1-7).

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The present invention describes that it is necessary to devise ways to protect personal data when it is not perfectly reproducible. This irreproducibility means that the data set does not determine perfectly its reading (see specification at page 16, lines 4-7). For example, because P_0 is in general (possibly) slightly different from P_i for $i > 0$, the secret version of P_0 will generally be quite different from the secret version of P_i . Thus, no identification is possible by direct comparison of the encrypted data (see specification at page 16, lines 12-17).

Indeed, the present invention discloses three methods that can be used to circumvent this situation and the sensitivity of the cryptographic functions (e.g., see specification at page 16, lines 18-19).

In comparison, Applicants respectfully reiterate that, while Borza generally describes comparing the encrypted data against an encrypted template (see Borza at column 8, lines 28-38), Borza simply mentions this only a single time in the disclosure and does not elaborate on this feature again. That is, Borza does not disclose or suggest with sufficient specificity how such a comparison could be implemented or accomplished.

Indeed, Applicants respectfully reiterate that the method described by Borza could not work in general, since such a comparison would generally be based on comparing matching scores and, because encryption diffuses the data, such comparison against the scores of encrypted data would not work (e.g., without significantly altering the accuracy and sensitivity of the identification process).

Specifically, a new data P' is matched against data P in the database if P' is "close" to P . However, the diffusive nature of encryption would ensure that $h(P)$ would be far from $h(P')$.

Thus, Applicants respectfully reiterate that it would not be possible to match $h(P)$ against $h(P')$, according to the disclosure of Borza.

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On the other hand, the claimed invention provides specific solutions to this problem (e.g., see specification at pages 17-20) and defined by novel and unobvious combination of elements recited in claims 1-3 and 5-36.

Accordingly, Applicants respectfully submit that Borza neither discloses nor suggests at least "to determine whether P' is close to a predetermined subject, comparing h(P') to available h(P)s to determine whether P' is close to some P", in as complete detail as recited, for example, in independent claim 1.

On the other hand, Applicants respectfully reiterate that Kharon does not make up for the deficiencies of Borza, and therefore, independent claims 1, 9, 19, 29, or 35 would not have been obvious over Borza or Kharon, either alone or in combination. Indeed, the Examiner does not even rely on Kharon for the disclosure of such features, as mentioned above.

Moreover, Applicants respectfully reiterate that claims 10-13, 19, 21-23, 29, and 35 also are patentable over Borza or Kharon, either alone or in combination, by virtue of the additional, novel and unobvious combination of features recited therein.

For example, with respect to claim 10 (see Office Action, numbered paragraph 23), while Kharon appears to describe how minutia in fingerprints are compared, Kharon does not describe the claimed method of computing subcollections and encrypting them (see Kharon at column 13, lines 43-67).

In comparison, a novel and unobvious aspect of the claimed invention is not merely to use a smaller data set, but to use many smaller subsets of the original data set and encrypting such smaller subsets of the original data set.

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As with Borza, in Kharon, unencrypted minutiae data must be compared, since the encryption would diffuse the data, and therefore, would render comparison against a threshold impossible (e.g., see Kharon at column 14, lines 28-39, and column 15, lines 42-55).

As another example, with respect to claims 12 and 23 (e.g., see Office Action, numbered paragraph 26), while Borza appears to describe the possibility of false rejection, Borza does not teach or suggest that the computation of the variations is possible with a particular piece of biometric data (e.g., see Borza at column 11, lines 25-34).

Similarly, Borza also does not teach or suggest the computation of variations (e.g., see Borza at column 12, lines 25-61).

Further, while Borza appears to describe encrypting the data before transmission, Borza does not describe comparing encrypted data against encrypted data in the database (e.g., see Borza at column 12, lines 25-61).

Also, while Borza appears to describe how multiple biometric data can be used to authenticate a person, Borza does not address how to compare encrypted data. (e.g., see Borza at column 11, line 65 to column 12 line 34).

Thus, for the foregoing reasons, Applicant respectfully reiterate that neither Borza nor Kharon discloses or suggests all of the features of claims 10-13, 19, 21-23, 29, and 35.

Therefore, the Examiner respectfully is requested to reconsider and withdraw this rejection of claims 10-13, 19, 21-23, 29, and 35.

C. Claims 1-36 stand rejected under 35 U.S.C. § 103(a) as being anticipated by, or alternatively, unpatentable over, Matyas, Jr. et al. (U.S. Patent No. 6,697,947).

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With respect to the rejection under 35 U.S.C. § 103(a), Applicants note that Matyas was commonly assigned to IBM Corporation at the time of the invention, as shown on the face of the Matyas patent. Thus, Applicants respectfully submit that Matyas is not available as prior art under 35 U.S.C. § 103(c), and therefore, the rejection of claim 1-36 under 35 U.S.C. § 103(a) should be withdrawn.

With respect to the rejection of claims 1-36 under 35 U.S.C. § 102(e) as being anticipated by Matyas, Applicants respectfully submit that Matyas does not disclose or suggest the claimed combination of features recited, for example in claim 1 (as amended). Thus, Applicants respectfully request that this rejection be withdrawn.

V. CONCLUSION

The Examiner objects to claims 24-36 because of informalities. Claims 26, 28, 30, 32, 34, and 36 have been amended to obviate the objections.

In view of the foregoing, Applicants submit that claims 1 and 5-36, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.


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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Assignee's Deposit Account No. 50-0510.

Respectfully Submitted,

Date: April 15, 2005



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CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (703) 872-9306 the enclosed Amendment under 37 C.F.R. § 1.111 to Examiner Christian A. La Forgia on April 15, 2005.


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